

ELECTRICIAN

A student who has completed the Job Corps Electrician program is equipped with the skills to contribute to the workplace as a valued employee from day one. Competence in academic and vocational skills is required for graduation. In addition, Job Corps students learn employability and technological skills. To complete his or her Electrician training, a student must master skills in these categories:

ELECTRICIAN HELPER

BASIC ELECTRICAL THEORY

Distinguish between volts, ohms, amps and watts; identify characteristics of alternating current and direct current; know Ohm's Law, Watt's Law and Kirchhoff's Law; wire and explain simple series and parallel circuits.

SAFETY

Demonstrate proper use of basic electrical safety equipment; comply with OSHA HAZMAT requirements; identify techniques and practices for fire prevention; identify and handle hazardous electrical materials.

HAND AND POWER TOOLS

Identify, use and maintain the following hand and power tools: knockout punches, benders, pipe threaders, power hand tools, electrical test equipment and saws.

BLEUPRINTS AND SPECIFICATIONS

Measure objects to the nearest 1/16"; interpret information, symbols and simple schematic drawings listed on blueprints; identify residential and commercial construction components; follow specifications, drawing and code requirements for rough-in wiring and material selection.

ELECTRICAL MATERIALS

Identify boxes, devices, covers and plates used in electrical construction; properly use fasteners; identify types of conduit, fittings, conductors and cables.

RACEWAY BENDING AND INSTALLATION

Find and explain applicable articles in the National Electric Code (NEC) for the following: electrical metallic and non-metallic tubing, rigid steel and non-metal conduit, surface raceways, flexible metallic and liquid-tight flexible conduit and armored cable; bend an offset, saddle and back bend using a manual bender for electrical metal tubing (EMT); install the following: EMT, rigid steel conduit and armored liquid-tight flexible conduit.

CIRCUIT LAYOUT AND WIRING

Install type SE cable according to NEC requirements; calculate service entrance loads; install the following circuits of 90 volts or less: two-button chimes, thermostats, telephone circuits, smoke detectors and step-down transformers.

LOAD CENTERS

Identify safety switch enclosures, load center accessories, parts of a breaker load center and panel interior configurations; install single-, double- and three-pole breakers; install GFCI circuit breakers; neatly shape and terminate conductors in load centers; identify components of and install basic single-phase and service entrances.

OVERCURRENT PROTECTION

Identify types of fuses and breakers rated 600V or less.

DEVICE INSTALLATION

Install single-pole, three-way and four-way switches and photo-electric control/motion switches; install the following receptacle outlets: duplex grounding, switch controlled split-wired, multicircuit split-wired, range or dryer, twist lock, cord caps and plugs and timer receptacles; identify NEMA configurations; explain the function, operation and NEC requirements for GFCI circuits; install and test GFCI circuits.

REMODELING INSTALLATIONS

Install a box and cable in an existing partition wall; patch holes in concrete and drywall.

LIGHTING INSTALLATION

Install surface-mounted and recessed incandescent/fluorescent light fixtures; retrofit ballasts.

SERVICE INSTALLATIONS

Follow appropriate safety precautions when excavating; install raceways with service entrance conductors and properly ground to meter base; connect a meter base assembly to load center or panel board.

RESIDENTIAL EQUIPMENT CONNECTORS

Connect a supply cord to a free-standing range/dryer; install a fixed appliance equipped with a pigtail to a branch circuit; install a disconnecting means for HVAC equipment/safety switch.

**ELECTRICIAN, PRE-APPRENTICE
ELECTRICIAN HELPER SKILLS PLUS THE FOLLOWING:****ADVANCED CONDUIT BENDING**

Rack multiple lengths of conduit; perform concentric bends; bend conduit using a hydraulic bender; bend PVC conduit; perform compound-bending operations.

MOTOR AND TRANSFORMER INSTALLATIONS

Interpret schematics and control diagrams; connect motors to motor controllers.

COMMUNICATIONS

Install and terminate coaxial cable; install telephone systems.

TROUBLESHOOTING

Identify basic troubleshooting procedures; troubleshoot electrical system problems and control circuits; use an ohm meter to determine continuity; use a polarity test.

UPON COMPLETION OF THE OUTLINED FOUNDATION COURSES, STUDENTS MAY SPECIALIZE IN THE FOLLOWING AREAS:

Fiber Optics

Network Cabling

AVAILABILITY OF SPECIALIZATIONS VARIES AMONG CENTERS.